



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Mark Hoffman et al.
ASSIGNEE: Upstream Technologies
SERIAL NUMBER: 09/696,762 EXAMINER: Nga B. Nguyen
FILING DATE: October 25, 2000 ART UNIT: 3628
FOR: INVESTMENT ADVICE SYSTEMS AND METHODS

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

DECLARATION OF PAUL SAMUELSON, Ph.D. UNDER 37 C.F.R. §1.132

I, Paul Samuelson, declare and state that:

1. I am Director of Research at Upstream Technologies ("Upstream"), the assignee of the above-referenced application. Prior to working at Upstream, I founded Samuelson Portfolio Strategies in order to translate investment managers' ideas into high performing investment strategies. I have almost 30 years of experience in building, maintaining and representing portfolio strategies. From 1993-1998, I was Chief Investment Officer at PanAgora Investment Management, Boston and London; I was Partner, Fixed Income Securities, at Hagler, Mastrovita and Hewitt, Boston from 1991-1993; Vice President Colonial Management Associates, Boston 1986-1991; Consultant Acadian Financial Management, Boston 1981-1986; and Director of Portfolio Analysis at The Ford Foundation, New York from 1978-1981.
2. I graduated Phi Beta Kappa and Cum Laude from Williams College B.A. (1975) and hold a Ph.D. (1986) and a M.S.M. (1977) from the Massachusetts Institute of Technology

3. I have reviewed the instant application and the August 12, 2004 Office Action in this case. I have also reviewed U.S. Patent No. 6,601,044 issued to Wallman (hereinafter "Wallman") upon which the rejections in the August 12, 2004 Office Action are based.

Long-Felt Need

4. Upstream provides software applications designed to meet the needs of managed accounts asset managers. In September 2004, an article entitled "Portfolio Management Systems Mature" (authored by Robert Stowsky, president and CEO of Brook Path Partners, an investment technology consulting firm) appeared in Waters Magazine. According to the Waters Magazine website, the Waters magazine covers the practical implementation of technology in the securities industry. A copy of the article is attached as Appendix I. The article states the following:

Recently, a venture capital firm asked to use the model to identify needs and emerging trends in the investment industry and to identify the vendors whose products address those needs and trends. We discovered that there are only a small number of vendors who provide tools that specifically address a portfolio manager's activities. A survey of products that provide portfolio management functions will, for the most part, result in a list of order management and portfolio accounting systems that have a limited amount of portfolio management functionality. Further investigation shows that at some installations these systems never end up on a portfolio manager's desk even as they are being used by that firm for trading or accounting, respectively.

What the order management and accounting systems lack are some of the basic tools required for constructing and maintaining a portfolio. Portfolios are usually constructed by taking an investor's objective and tolerance for risk and matching them to an existing benchmark. For example, if those objectives and risk tolerances happen to match closely the overall US equity market, then the S&P 500 index becomes the benchmark onto which to base the portfolio. If the match is closer to an emerging equity market, an index may be the appropriate benchmark.

Benchmark indices exist that reflect almost every type of equity or debt market throughout the world. In our example of a portfolio using the S&P 500 as its benchmark, it is up to the portfolio manager to select a combination of stocks or other investments that can emulate, or exceed, the

behavior of the S&P 500, but at a lower cost of ownership, or less risk, than owning all 500 stocks that make up the index.

In most cases, master portfolios are created for the major indices and are then cloned across customers' accounts. A cloned portfolio may then be slightly modified from the original to meet the particular requirements of its specific account, such as compliance and tax restrictions. In addition to an individual stock's performance and related market conditions, factors that play into the construction of a portfolio may include the amount of cash available for investment and the transaction costs for the purchase, or sale, of shares needed to meet the portfolio's objectives.

Once the portfolio and its clones are created, they will need to be evaluated periodically to measure how closely they are tracking their benchmark. If the portfolio veers far enough from its benchmark, then the manager will need to decide what shares should be sold or bought to bring the portfolio back in line. Aside from the initial trades required for construction, it is this rebalancing of portfolios that generate the vast majority of a buy-side firm's trading volume. It is also these processes of construction, cloning and rebalancing for which few products aim to provide functionality.

If Not Excel, Then What?

Anyone looking for proof of the scarcity of tools that can perform the complex calculations required for creating and maintaining portfolios need only take a quick inventory of the number of Microsoft Excel spreadsheets on desks of portfolio managers throughout the investment industry. A combination of some clever macro programming and third-party add-ins can create the toolset needed for portfolio construction and rebalancing.

However, spreadsheets have their drawbacks. These include the inability to integrate with external systems such as compliance and risk, difficulty in maintenance by anyone else but the spreadsheet's author, and inability to scale upward to meet demands across the firm. To meet these requirements a small number of vendors are now offering tools that specifically address the portfolio manager. A leading vendor in this area is Upstream Technologies, whose IMS product addresses the construction, cloning and rebalancing phases of portfolio management and can integrate with external systems that provide customer, compliance, risk and research information. Upstream's system also integrates directly with the Lava and Credit Suisse First Boston Advanced Execution Services (CSFB AES) trading platforms, or can generate trades to an OMS.

Other vendors in this area include Barra and Northfield Information Services [NIS], both of which, like Upstream, provide models for portfolio construction and risk analysis. Users of these three vendors include

managers of mutual funds, plan sponsors, hedge funds and separately managed accounts. Another vendor, Vestmark, provides a portfolio management system aimed specifically at managers of separately managed accounts. Unlike Excel, these systems are scalable and support the increasingly important functions of compliance and risk. [Emphasis added]

5. Thus, the above-quoted Waters article discusses identifying needs in the investment industry and identifying vendors whose products address those needs. The 2004 article continues to state that there are only a small number of vendors who provide tools that specifically address a portfolio manager's activities and notes Upstream as a leading vendor in this area. As indicated by the Waters article, Upstream's Investment Management System (IMS), which embodies the claimed invention of the present application, satisfies a long-felt need in the investment industry and addresses a portfolio manager's activities.

Commercial Success

6. Despite a sharp downturn in the financial sectors starting in 2000, in my opinion Upstream has enjoyed commercial success because of the unique utility of Upstream's IMS, which embodies the claimed invention of the present application.
7. Upstream was founded in late 1999. For about the next eighteen months Upstream performed research and development. In early 2001, it began beta testing its solution with its first client, American Century, a large institutional asset manager ("American Century"). As a result, American Century executed a full license with Upstream and, since 2002, has been using Upstream's IMS.
8. In early 2002, Upstream agreed to a testing phase with Putnam Investments ("Putnam"). Putnam evaluated other companies in Upstream's sector. Putnam executed a license with Upstream. Since 2002, Putnam has been using Upstream IMS.
9. In early 2003, Lava Trading, a large New York-based technology provider now owned by Citigroup, expressed interest in investing in a company in Upstream's sector. It evaluated several companies in Upstream's sector and decided that Upstream was the company in which it wanted to invest. This investment was reported in Wall Street & Technology (a periodical covering business technology

- for the securities industry) in a May 15, 2003 article entitled “Lava Trading Sees the Upside In Separate Accounts.” A copy of this article is attached as Appendix II. Lava Trading made a second investment in Upstream in 2004.
10. In late 2003, Upstream competed with a variety of other companies in its sector in an effort to establish a business relationship with Frank Russell Securities, one of the West Coast’s largest asset managers (“Frank Russell”). Upstream won the competition and Frank Russell licensed Upstream’s IMS.
 11. In early 2004, Upstream beat out its competitors in a competition conducted by Pioneer Investments, another very large asset manager (“Pioneer”). Pioneer chose Upstream’s solution and entered into a license with Upstream.
 12. In 2004, Credit Suisse First Boston, like Lava Trading, decided to invest in a company in Upstream’s sector in order to enhance its own services. It evaluated several companies and chose Upstream, completing its investment in June 2004.
 13. Most recently, Upstream completed a contract with one of the largest financial institutions in the world whereby this institution has licensed Upstream’s IMS in order to resell it to the financial sector. This institution conducted a review of companies in Upstream’s sector and chose Upstream.
 14. In my opinion, commercial success of Upstream’s IMS has resulted from the claimed invention in that the claimed invention provides an IMS that has a combination of characteristics/features not found in any other offering known to me. The features include the ability to:

Track Portfolios – format to automate daily portfolio monitoring;

Manage-by-Exception – Automatically flag accounts that violate user-defined thresholds;

Build Model Portfolios – Create a number of model portfolios;

Manage Multi-Discipline Accounts – Manage in-house or overlay portfolios with multiple asset classes and multiple styles;

Manage Risk – Integrate risk factors into trade decisions using Upstream’s risk model;

Control Dispersion – Rebalance or optimize portfolios versus a model or benchmark;

Conduct “What-if” Analysis – Display trade recommendations, edit and select alternatives and review potential portfolio impact;

Pre-trade Review - Review suggested trade recommendations prior to generating trade orders; and

Manage Tax Efficiency – Include tax implications of trades for tax sensitive/advantaged portfolios.

15. These characteristics/features are enabled by the subject matter claimed in the present application. See. e.g., claims 11, 15-18, 46, 51-54, 56-72, and 74-76 and FIGS. 1-16, 18 and 20 and associated text from the specification.
16. In my opinion, the commercial success that Upstream has enjoyed in the marketing of Upstream’s IMS is primarily attributable to its unique combination of features (enabled by the claimed subject matter) since no extensive amount of advertising was conducted for Upstream’s IMS. The total amount spent by Upstream on all advertising for Upstream’s IMS from early 2001 to the present is less than \$20,000.

Conclusion

17. I understand that claims 57, 59, 61-64, 67, 68, and 70 stand rejected as being obvious in view of Wallman. In my opinion the differences between the subject matter claimed in claims 57, 59, 61-64, 67, 68, and 70 and Wallman would not have been obvious to one of ordinary skill in the art at the time the invention was made for the reasons provided on pages 32-44 in the Amendment and Response being filed concurrently with this Declaration. Furthermore, in my opinion, the systems and methods of claims 57, 59, 61-64, 67, 68, and 70 are not obvious in view of Wallman in that, notwithstanding the need for tools that specifically address a portfolio manager's activities, (as the above-quoted Waters article notes) as of about September 2004 only a small number of vendors were offering tools

that specifically address the portfolio manager and Upstream in offering its IMS (which incorporates the claimed subject matter) is a leading vendor in this area.

18. In my opinion, the long-felt need for tools that specifically address a portfolio manager's activities and the commercial success enjoyed by Upstream's IMS, which incorporates the claimed subject matter (e.g., claims 57, 59, 61-64, 67, 68, and 70), are indicia of nonobviousness of the claimed subject matter.

19. I declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001 and that willful false statements may jeopardize the validity of this application and any patent issuing therefrom.

Dated: 11/27/05

Signed: Paul Samuelson
PAUL SAMUELSON

APPENDIX I

[Click here to print this page](#)

Title: **Portfolio Management Systems Mature**
Feature: **Open Platform**
Date: **1 September 2004**

As vendors begin to provide tools that address the true business of the buy side, STP could have a direct impact on portfolio management decisions.

Last year's SIBOS conference in Singapore saw a barrage of attacks on the buy side by brokers and custodians who asserted that asset managers were the major roadblock to industry-wide straight through processing (STP). The buy side's lack of enthusiasm for taking on the costs associated with implementing STP should not come as a surprise when one looks at the focus of the majority of STP models.

By most definitions, STP only addresses post-trade processing. The many charts and diagrams put together by STP advocates address activities that have a direct impact on firms whose primary business is to execute and process trades—in other words, the sell side. While the Institutional Transaction Processing Model created by the Securities Industry Association (SIA) looks at the trade process from the perspective of both the buy and sell sides, the fact that it focuses on the transactions means that it fails to take into account the processes that do directly impact the true business of all buy-side firms. That business is profiting from the fees collected from investors who are attracted to a specific buy-side firm by its ability to provide a return on their investment.

Brook Path Partners has developed a model that we call the Investment Supply Chain and we believe that it incorporates those major components of the buy-side business that STP models have neglected. The Investment Supply Chain sees all buy-side firms, whether a solo investment advisor or a large mutual fund manager, as being similar to a factory that produces investment returns from the capital provided by their customers. This model begins with the creation of the individual, or institutional, customers' profiles, consisting of elements that include capital invested, investment objectives and risk tolerance. Activities like trading and settlement, accounting, compliance and risk management and their associated static and dynamic data are all parts of the model that support and supplement the primary activity of construction and maintenance of the investment portfolios that produce returns based on the customers' profiles.

Few Products for the Portfolio Manager

We use our model when working with our buy-side and sell-side clients to identify areas where either costs can be reduced by increasing efficiencies, or revenues can be enhanced by creating new service offerings. Recently, a venture capital firm asked to use the model to identify needs and emerging trends in the investment industry and to identify the vendors whose products address those needs and trends. We discovered that there are only a small number of vendors who provide tools that specifically address a portfolio manager's activities. A survey of products that provide portfolio management functions will, for the most part, result in a list of order management and portfolio accounting systems that have a limited amount of portfolio management functionality. Further investigation shows that at some installations these systems never end up on a portfolio manager's desk even as they are being used by that firm for trading or accounting, respectively.

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Benchmark indices exist that reflect almost every type of equity or debt market throughout the world. In our example of a portfolio using the S&P 500 as its benchmark, it is up to the portfolio manager to select a combination of stocks or other investments that can emulate, or exceed, the behavior of the S&P 500, but at a lower cost of ownership, or less risk, than owning all 500 stocks that make up the index.

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However, spreadsheets have their drawbacks. These include the inability to integrate with external systems such as compliance and risk, difficulty in maintenance by anyone else but the spreadsheet's author, and not being able to scale upward to meet demands across the firm. To meet these requirements a small number of vendors are now offering tools that specifically address the portfolio manager. A leading vendor in this area is Upstream Technologies, whose IMS product addresses the construction, cloning and rebalancing phases of portfolio management and can integrate with external systems that provide customer, compliance, risk and research information. Upstream's system also integrates directly with the Lava and Credit Suisse First Boston Advanced Execution Services (CSFB AES) trading platforms, or can generate trades to an OMS.

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How STP Fits In

Our Investment Supply Chain model begins with the customer who makes the investment. That customer is likely attracted to a specific manager, or fund, because of a combination of that manager's performance and the customer's tolerance for risk. When customers look at their portfolio's quarterly reports, they are going to see the return on their investment minus the costs of managing the portfolio. The current regulatory environment is leaning toward more disclosure to customers on what those costs are.

Current STP models aim to reduce the costs associated with processing of trades, especially the costs of failed trades. What these models lack that the Investment Supply Chain model endeavors to demonstrate is how these reduced costs, when fed back into customers' accounts, result in either lower fees for the customers, or more cash for the portfolio manager to invest on their behalf. The new breed of portfolio management systems will make it possible to take immediate advantage of the cash in the customers' account that results from the decreased cost of trade processing. For the buy-side firms that adopt these technologies, STP now becomes part of a competitive toolset for their primary business.

Robert Stowsky is president and CEO of Brook Path Partners, an investment technology consulting firm. He can be reached at rstowsky@brookpath.com.

Source:

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APPENDIX II

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Lava Trading Sees the Upside in Separate Accounts

May 15, 2003

URL: <http://www.wallstreetandtech.com/showArticle.jhtml?articleID=14702127>

Lava Trading Inc. made a strategic investment in Upstream Technologies, LLC, a Boston-based developer of asset-management technology used by managers of separate accounts.

Lava plans to link its direct-access technology -- known for providing connectivity to all exchanges and multiple electronic communications networks -- to Upstream's order-generation-platform.

However, the amount of money that Lava invested was not disclosed. "We're not quantifying it, (but) it is a significant investment," says Richard Korhammer, Lava's chief executive officer.

Evan Schulman, Upstream's chairman declines to reveal the amount of the Series A financing round led by Lava, calling it "confidential," and adding: "It should be enough to take us to profitability." "Until this point, Upstream has existed on angel money and sweat equity," says Schulman who along with CEO Mark Hoffman, founded the firm in 1999.

The Upstream Investment Management Platform is used to review thousands of individual portfolios and generate orders that reflect the firm's investment style and quality control.

"We take client's research and client restrictions and legacy holdings and fashion that into portfolios that are meant to track a particular model or benchmark, and so it's optimization or replication," explains Schulman.

The platform-- which spans domestic equities, fixed income, international securities and mutual funds -- also accommodates Multiple Disciplinary Accounts (MDAs), which mix two or more asset classes into a single account.

It's also a sign that the fast growing SMA business is attracting attention from broker-dealers who are Lava's clients.

"Brokers have been pushing(SMAs) as opposed to mutual funds for the tax benefits," says Schulman, who adds, "It's a growing field in a market that doesn't have many hot spots right now."

"It's a fast growing marketplace and that is valuable to Lava as well," notes Korhammer. According to

the Money Management Institute, approximately \$400 billion is currently under management by the managed account industry -- which amounts to a 21 percent compound annual growth rate over the past six years -- and it estimates that by 2010 assets will reach \$2.3 trillion.

But, Korhammer says the implementation of Lava's technology and the technology that Upstream offers to clients "will not be used in the typical direct access fashion. We have sponsoring brokers who sponsor our technology to the buy side," explains Korhammer. They (buy-side firms) would be routing the orders to brokers, who would in turn be using the sophisticated Lava tools," he says.

Confirms Schulman: "Lava is a multi-broker system. It would be a technique for getting the orders back to the sponsor."

The way the SMA works is that "you have brokers that invest assets into SMA programs with the buy side. Quite often the commission or trading activity can get directed to these brokers, and so our technology can help them facilitate this type of trading," Lava's CEO says.

Korhammer says that Lava is in a different part of the food chain from Upstream. "They're in individual portfolio optimization, tax efficiency and legacy positions for money managers that need to manage large quantities of individual accounts. Because their (Upstream's) technology is very scalable, it is very important for running optimization analysis for thousands of portfolios," he explains.

"We are in the area of helping traders buy low as possible and sell as high as possible through intelligent algorithms when that part of the process is necessary," he adds.

Asked what attracted Lava to Upstream? "They're management is impressive, they are in a growth market and they have modern technology which works well for communication between our platforms, and they did have great customer references," he says.

Upstream's platform runs on a Windows 2000 and is Web-based delivery to the users through a browser. Because it uses XML for data loading and for generating orders, it's flexible enough to handle legacy systems. "Integration should not be much of a problem," says Schulman, who together with Upstream CEO Mark Hoffman, co-founded Lattice Trading, an alternative trading system sold to State Street Bank in 1996.

The firm's two largest clients include American Century for its private account program and a top 10 unnamed mutual fund company that recently selected the platform for separately managed accounts.



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